

Applicant: Tesfai et al.
Application No.: 10/707,588

REMARKS/ARGUMENTS

After the foregoing Amendment, Claims 1-32 are currently pending in this application and Claims 21, 22, 24, 25, 28, 31, and 32 are amended. A limitation of claim 22 is incorporated into claim 21; a similar limitation of claim 25 is incorporated into claim 24; and a similar limitation of claim 32 is incorporated into claim 31. Claim 28 is amended to correct a typographical error. Applicants submit that no new matter has been introduced into the application by these amendments.

Objections to the Specification

The Examiner objected to errors in paragraph [0023] as it appears in the publication of the present application. However, Applicants have reviewed the specification as filed, and found the errors noted by the Examiner to have been created during the publication. As publication errors are not the responsibility of the Applicant, no amendments to the specification are submitted herein.

Double Patenting Rejection

Claims 1-4 and 6-9 are rejected under the judicially created doctrine of non-statutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,873,651. A Terminal Disclaimer is submitted herewith to

overcome the obviousness-type double patenting rejection. The withdrawal of the obviousness-type double patenting rejection is respectfully requested.

Claim Rejections - 35 USC § 112, First Paragraph

Claims 1-32 are rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement.

The Examiner has objected to the use of the phrase "receive filter matrix comprised of a plurality of submatrices each being a convolution matrix derived from a receive filter-sub-vector..." for lacking support in the specification. Applicants disagree and cite the following sections of the specification for enablement support.

Paragraph [0031] of the specification describes the following regarding a "receive filter matrix":

The receive filter matrix for the first communication device is denoted $\mathbf{W}_{R,D1}$, and the receive filter matrix for the second communication device is denoted $\mathbf{W}_{R,D2}$. **Each receive filter matrix comprises a sub-matrix for each antenna of that device. Each sub-matrix is a convolution matrix derived from the receive filter sub-vector associated with the corresponding antenna depicted in FIG. 3.**

Again, at paragraph [0045], support for "receive filter matrix" can be found:

At the second communication device there are steps of generating a receive filter matrix from a signal received by the one or more antennas of the second communication device from the first communication device, the **receive filter matrix comprised of one or more sub-matrices each being a convolution matrix derived from a receive filter sub-vector...**"

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In paragraph [0023], a receiver apparatus is described in reference to Fig.1, pertaining to the elements used to derive the receive filter matrix:

Each receive antenna filter 140(i) is, for example, a **tapped delay-line filter** having a number of taps, and is essentially a matched filter. A combiner/equalizer 150 is coupled to the receive antenna filters 140(1) to 140(N). The characteristic of each receive filter 140(i) is defined by a **receive filter sub-vector** $\underline{w}_{R,D}^i$ having a length corresponding to the number of taps of the receive antenna filters 140. The entry in each receive filter sub-vector $\underline{w}_{R,D}^i$ defines the corresponding complex tap weight for the delay-line filter.

Hence, the specification provides support for enablement with respect to the receive filter matrix limitation in independent claims 1, 6, 15, 21, 24, and 31.

Claims 2-5, 7-14, 15-20, 22-23, 25-30 are dependent upon claims 1, 6, 15, 21, 24, 31, which the Applicants believe are allowable over the cited prior art of record for the same reasons provided above. Based on the argument presented above, withdrawal of the 35 USC §112, first paragraph rejection of claims 1-32 is respectfully requested.

Claim Rejections - 35 USC §103

Claims 21, 24, stand rejected under 35 USC §103(a) as being unpatentable over U.S. Publication No. 2004/01014839 (Velazquez). Claim 31 stands rejected as being unpatentable over Velazquez in view of Forssén (U.S. Patent No. 5,924,020).

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As to claims 21 and 24, Velasquez references the method of using a set of complex-valued weights feeding back to regulate the gain and phase of incoming signals in a Finite Impulse Response filter (¶ 0081). The reference also teaches the storage of the transmit filter vector in memory and weighting updates based on GPS location data (¶ 0008). However, Velazquez does not disclose or suggest the computation of "computing a principal eigenvector of a product of the receive filter matrix and a Hermitian of the receive filter matrix" as does claims 21 and 24 as currently amended.

With respect to claim 31 as amended, the combination of Velazquez and Forssén fails to disclose or suggest "computing a principal eigenvector of a product from a signal received from the other communication device and a Hermitian of the receive filter matrix".

Based on the arguments presented above, withdrawal of the 35 USC §103(a) rejection of claims 21, 24, and 31 is respectfully requested.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this

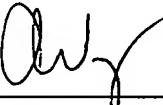
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application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 1-32, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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Enclosure